

I claim:

1. An optical attenuator comprising:

a neutral density filter comprising a first surface and a second surface, wherein at least one of the first surface and the second surface is not perpendicular to a direction of an incident light beam;

an input optical fiber, for inputting light signals to be attenuated;

an output optical fiber, for outputting attenuated light signals;

a first ferrule receiving the input optical fiber therein;

a second ferrule receiving the output optical fiber therein;

a plurality of retaining devices retaining the filter, the first ferrule and the second ferrule; and

a cover retaining the retaining devices and protecting the optical attenuator.

2. The optical attenuator as described in claim 1, wherein the optical attenuator is a fixed optical attenuator.

3. The optical attenuator as described in claim 1, wherein the neutral density filter is attached to a terminal of the first ferrule thereby covering a terminal of the input optical fiber.

4. The optical attenuator as described in claim 1, wherein the plurality of retaining devices comprises:

a tube having a space retaining the first ferrule, and a space for receiving a ferrule of an input optical connector;

a shell receiving a front part of the tube therein;

a sleeve for providing input optical signals to the input optical fiber, the sleeve having a space protecting the first ferrule and the input optical fiber therein;

a spring located between the sleeve and the shell and being received in the shell;

a latch protecting the input optical fiber and an optical fiber of the input optical connector therein; and

a housing having a space receiving and protecting the tube, the shell, the sleeve, the spring and the latch.

5. An optical attenuator comprising:

an input optical fiber;

an output optical fiber;

a first ferrule receiving the input optical fiber therein;

a second ferrule receiving the output optical fiber therein;

an attenuating device disposed in a light path between the input optical fiber and the output optical fiber;

a tube having a space retaining the first ferrule, and a space for receiving a ferrule of an input optical connector;

a shell receiving a front part of the tube therein;

a sleeve for providing input optical signals to the input optical fiber, the sleeve having a space protecting the first ferrule and the input optical fiber therein;

a spring located between the sleeve and the shell and being received in the

shell;

a latch protecting the input optical fiber and an optical fiber of the input optical connector therein;

a housing having a space receiving and protecting the second ferrule, the attenuating device, the tube, the shell, the sleeve, the spring and the latch; and

a cover retaining and protecting the housing, the second ferrule, the attenuating device, the tube, the shell, the sleeve, the spring and the latch.

6. The optical attenuator as described in claim 5, wherein the attenuating device is a neutral density filter comprising a first surface and a second surface.

7. The optical attenuator as described in claim 6, wherein at least one of the first surface and the second surface is not perpendicular to a direction of an incident light beam.

8. The optical attenuator as described in claim 6, wherein both the first surface and second surface are substantially perpendicular to the incident light beam.

9. An optical attenuator comprising:

opposite input and output optical fibers respectively enclosed in first and second ferrules with confrontation ends of said first and second ferrules spaced from each other;

one attenuating device positioned between said confrontation ends; and

a retainer holding said first ferrule and said second ferrule to have said first fiber, said second fiber and said attenuating device moved together axially.

10. The attenuator as described in claim 9, wherein a sleeve is engaged with a housing and cooperates with a housing to enclose said retainer.

11. The attenuator as described in claim 10, wherein a resilient device is respectively engaged with the retainer and at least one of said sleeve and said housing so as to have the retainer with the associated first fiber, second fiber and attenuating device recoverably moved with regard to both said sleeve and said housing axially.

12. The attenuator as described in claim 9, wherein said attenuating device is attached to one of said confrontation ends.